What is claimed is:

1. A perpendicular magnetic recording medium comprising:

at least a first and a second perpendicular magnetic recording layer; and

a substrate supporting the first and the second perpendicular magnetic recording layers,

wherein the first and the second perpendicular magnetic recording layers have different physical/magnetic properties and are formed of materials that compensate the different physical/magnetic properties.

2. The perpendicular magnetic recording medium of claim 1, wherein the first and the second perpendicular magnetic recording layers are selected from the group consisting of a layer for improving perpendicular magnetic anisotropic energy (Ku), a layer for reducing the size of crystal grains, a layer for reducing the size of magnetic domains, a layer for increasing SNR, a layer for improving signal output, a layer for reducing noise, a layer for improving the uniformity of crystal grain sizes, and a layer for improving the uniformity of magnetic domain sizes.

3. The perpendicular magnetic recording medium of claim 1, wherein the first perpendicular magnetic recording layer has smaller crystal grains than the crystal grains of the second perpendicular magnetic recording layer, and the second perpendicular magnetic recording layer has higher perpendicular magnetic anisotropic energy (Ku) than the first perpendicular magnetic recording layer.

4. The perpendicular magnetic recording medium of claim 1, wherein the first perpendicular magnetic recording layer has higher perpendicular magnetic anisotropic energy (Ku) than the second perpendicular magnetic recording layer, and the second perpendicular magnetic recording layer is used to reduce noise.

5. The perpendicular magnetic recording medium of claim 1, wherein one of the first and second perpendicular magnetic recording layer is used to improve perpendicular magnetic anisotropic energy (Ku), and the other perpendicular magnetic recording layer is used to reduce the size of crystal grains.

6. The perpendicular magnetic recording medium of claim 1, wherein one of the first and second perpendicular magnetic recording layers is used to improve perpendicular magnetic anisotropic energy (Ku), and the other perpendicular magnetic recording layer is used to reduce the size of magnetic domains.

7. The perpendicular magnetic recording medium of claim 1, wherein one of the first and second perpendicular magnetic recording layers is used to improve perpendicular magnetic anisotropic energy (Ku), and the other perpendicular magnetic recording layer is used to increase the uniformity of crystal grain sizes.

8. The perpendicular magnetic recording medium of claim 1, wherein one of the first and second perpendicular magnetic recording layers is used to improve signal output, and the other perpendicular magnetic recording layer is used to reduce the medium noise.

9. The perpendicular magnetic recording medium of claim 1, wherein the first perpendicular magnetic recording layer has higher perpendicular magnetic anisotropic energy (Ku) than the second perpendicular magnetic recording layer.

10. The perpendicular magnetic recording medium of claim 1, wherein the perpendicular magnetic recording layers have crystalline structures.

11. The perpendicular magnetic recording medium of claim 1, wherein the perpendicular magnetic recording layers have amorphous structures.

12. The perpendicular magnetic recording medium of claim 1, wherein one of the first and second perpendicular magnetic recording layers has a crystalline structure, and the other perpendicular magnetic recording layer has an amorphous structure.

13. The perpendicular magnetic recording medium of claim 1, wherein the perpendicular magnetic recording layers have magnetic domains that are physically disconnected from one another.

14. The perpendicular magnetic recording medium of claim 1, wherein the perpendicular magnetic recording layers have magnetic domains that are physically connected to one another.

15. The perpendicular magnetic recording medium of claim 1, wherein one of the first and second perpendicular magnetic recording layers has magnetic domains that are physically disconnected from one another, and the other perpendicular magnetic recording layer has magnetic domains that are physically connected to one another.

16. The perpendicular magnetic recording medium of claim 1, wherein both the first and second perpendicular magnetic recording layers have a weak exchange coupling between magnetic particles.

17. The perpendicular magnetic recording medium of claim 1, wherein one of the first and second perpendicular magnetic recording layers has a weak exchange coupling between magnetic particles, and the other one has a strong exchanging coupling between magnetic particles.

18. The perpendicular magnetic recording medium of claim 1, wherein both the first and second perpendicular magnetic recording layers are formed of at least one alloy selected from the group of a CoCr alloy, a NiFe alloy, a FePt alloy, an Fe alloy, a Co alloy, a Ni alloy, a Pd alloy, a Pt alloy, and an alloy containing at least one material selected from Nd, Pd, Ru, B, and Nb.

19. The perpendicular magnetic recording medium of claim 1, wherein at least one underlayer is placed between the substrate and one layer of the first and second perpendicular magnetic recording layer.

20. The perpendicular magnetic recording medium of claim 19, wherein the underlayer is formed of an alloy containing either one material or at least two materials selected from Pt, Au, Ag, Pd, Ti, Ta, B, Nb, Co, Fe, Ni, Cu, Mo, Ru, Ta, C, Oxide, and Si.

21. The perpendicular magnetic recording medium of claim 1, wherein both the first and second perpendicular magnetic recording layers are formed of either a CoCrPt alloy or CoCrPtX (X = B, Nb, Ta, O, or C) alloy, and the first perpendicular magnetic recording layer contains 10% or more Pt, while the second perpendicular magnetic recording layer contains 10% or less Pt.

22. The perpendicular magnetic recording medium of claim 1, wherein the first perpendicular magnetic recording layer is formed of a CoCrPt alloy, and the second perpendicular magnetic recording layer is formed of CoCrPtX (X = B, Nb, Ta, O, or C) alloy.

23. The perpendicular magnetic recording medium of claim 1, wherein the first perpendicular magnetic recording layer is formed of a CoCrNbPt alloy, and the second perpendicular magnetic recording layer is formed of a CoCrBPt alloy.

24. The perpendicular magnetic recording medium of claim 1, wherein the first perpendicular magnetic recording layer is formed of a CoCrPt alloy, and the second perpendicular magnetic recording layer is formed of CoCrBPt alloy.

25. The perpendicular magnetic recording medium of claim 1, wherein the first perpendicular magnetic recording layer is formed of a CoCrPt alloy, and the second perpendicular magnetic recording layer is formed of a CoCrNbPt alloy.

26. The perpendicular magnetic recording medium of claim 1, wherein both the first and second perpendicular magnetic recording layers are formed of an CoCrPt alloy, but the composition of a CoCrPt alloy for the first perpendicular magnetic recording layer is different from the composition of a CoCrPt alloy for the second perpendicular magnetic recording layer.

27. The perpendicular magnetic recording medium of claim 1, wherein both the first and second perpendicular magnetic recording layers are formed of an alloy containing Co, Cr, and Pt.

28. The perpendicular magnetic recording medium of claim 1, wherein one of the first and second perpendicular magnetic recording layers is formed of an alloy containing CoCrPtX (X = B, Nb, Ta, O, and C).

29. The perpendicular magnetic recording medium of claim 1, wherein each of the first and second perpendicular magnetic recording layers has a thickness of 50nm or less.

30. The perpendicular magnetic recording medium of claim 1, wherein total thickness of the first and second perpendicular magnetic recording layer is less than 200nm.

31. The perpendicular magnetic recording medium of claim 1, wherein both the first and second perpendicular magnetic recording layers have lattice matching structures.

32. The perpendicular magnetic recording medium of claim 1, wherein one of the first and second perpendicular magnetic recording layers has a lattice matching structure, and the other perpendicular magnetic recording layer has a lattice mismatching structure.